

4. On some North-American Tineidæ. By THOMAS, Lord  
WALSINGHAM, F.Z.S.

[Received February 15, 1881.]

(Plates XXXV., XXXVI.)

In a paper published last year in the Proceedings of this Society, I endeavoured to contribute a few observations upon synonymy, calculated to afford some assistance towards a revision of the North-American Tineidæ. I now propose to describe a few more new species from that country, and to direct attention to the synonymy of some others of the genera to which they belong. Of the ten genera noticed in this paper, four only have at present been recognized by American authors. The claims of one other to a footing in the New World have hitherto rested upon Mr. Walker's record of a single specimen not now to be found in the British Museum. Two European genera are now, for the first time, mentioned as occurring there, unless one of these has possibly been recharacterized in America under another name; and three, so far as I am able to determine, are new. Some species known in Europe are also now recorded from California and Oregon.

PHRYGANEOPSIS, gen. nov.

*Caput hirsutum; antennæ pubescentes; haustellum mediocre; palpi maxillares plicati; palpi labiales capite ter longiores, porrecti, supra et infra hirsute pilosi. Alæ anticæ a basi dilatatæ, costa subarcuata, apice depresso; margo apicalis obliquus. Alæ posticæ latæ. Abdomen anguste compressum. Tibiæ hirsute pilosæ, aliquot incrassatæ.*

Head rough; antennæ indented at the joints, pubescent in both sexes, more strongly in the male; ocelli none; tongue of medium length, slightly scaled; maxillary palpi folded. Labial palpi projecting, three times the length of the head, slightly drooping; the second joint scarcely thickened beyond the middle, the apical joint rather more than half the length of the second, roughly clothed to the points with coarse hair-like scales.

♂. Fore wings rather broad, the costa slightly arched, depressed towards the apex (broader and subfalcate in the female); apical margin oblique. Hind wings broad, not perceptibly indented below the apex; fringes long. Abdomen laterally compressed, projecting considerably beyond the hind wings. Tibiæ roughly hairy, somewhat thickened.

This somewhat aberrant form should probably be placed somewhere near the genus *Incurvaria*. It differs very considerably in the form of the palpi, but approaches that genus in the neuration and in the form of the abdomen, as also somewhat in general appearance.

I have failed to find, in the writings of either Mr. Clemens or Mr. Chambers, any generic description which would rightly apply to its peculiar structure and appearance; nor is there any European form which corresponds to it.

*PHRYGANEOPSIS BRUNNEA*, sp. nov. (Plate XXXV. fig. 1, 1a, 1b, 1c).

*Capite ochreo, palpis brunneis, antennis sordidis; alis anticis cum ciliis chocolate brunneis, purpureo vel viridi-purpureo subnitidis, costa dimidia exteriore dilute ochraceo maculata, puncta disci et puncto in medio marginis dorsalis dilute ochraceis; alis posticis ♂ brunneis, ♀ subpurpureis.*

Head roughly clothed, ochreous; palpi dark brown, slightly depressed, extending three times the length of the head beyond it. Antennæ pubescent in both sexes, dirty whitish brown above in the ♀.

Fore wings and cilia dark chocolate-brown, with a gloss of purplish in the ♂ and of greenish purple in the ♀, especially noticeable where any abrasion of the scales has occurred; the costa is faintly marked on its outer half with two or three groups of pale ochreous scales, the last of which lies above the apex at the commencement of the costal cilia; there is a spot of the same colour on the middle of the dorsal margin, with a small pale discal spot above and beyond it. Hind wings brown in ♂, purplish in the ♀. Legs and abdomen of the same colour; the feet slightly paler.

Expanse, ♂ 20, ♀ 25 millim.

Three specimens (2 ♂, 1 ♀) on the coast of Klamath county, California, June 1872.

#### Genus *CALANTICA* (Zeller).

*CALANTICA POLITA*, sp. nov. (Plate XXXV. fig. 2.)

*Capite crinito et thorace candidis; antennis (excepta basi candida) cinereis; palpis decumbentibus, articulo secundo cinereo, apicali candido; alis anticis nitidis, subcæruleo-candidis, puncto in fine cellulæ fusco, costæ basi anguste cinerea, strigula dorsali obliqua post medium cinerea, ciliis subcinereis; posticis saturate plumbeo-cinereis, ciliis dilutioribus.*

Head roughly clothed, together with the thorax shining white; the palpi depressed, having the second joint cinereous, the apical joint thickly clothed, white above, touched with cinerous beneath. Antennæ white at the base, cinereous beyond.

Fore wings shining white, with a faint bluish tinge; a fuscous dot at the end of the cell; the base of the costa narrowly cinereous, and a small cinereous oblique streak beyond the middle of the dorsal margin, but preceding the discal spot to which it points; this streak, in some specimens, is obsolete; the cilia are slightly tinged with cinereous, and in some specimens have a row of very faint minute cinereous dots at their base, along the apical margin. Hind wings very pale greyish cinereous, with paler cilia. Underside of the fore wings cinereous, of the hind wings greyish.

Expanse 15 millim.

The only points of structure in which this species appears to differ from the European representatives of the genus *Calantica* are the greater length of its palpi and the less thickened tibiæ of the first pair of legs.

## ARÆOLEPIA, gen. nov.

*Capilli in capite et fronte hirsuti. Palpi labiales breves, articulo secundo incrassato, supra hirsute crinito, tertio inconspicuo. Antennæ pubescentes. Alæ anticæ elongatæ, ad angulum analem dilatatæ; costa non arcuata; margo apicalis obliquus, vix concavus. Alæ posticæ sat latæ, aliquot acuminatæ.*

Head rough above and in front, the scales on the face projecting forwards in a compact tuft; those above the eyes erect and less closely compressed; ocelli present. Antennæ slender, pubescent, about half the length of the fore wings; basal joint short, slightly enlarged. Maxillary palpi none. Labial palpi short, thickly clothed with coarse scales, which project more widely above than beneath; the second joint somewhat thickened; the apical joint short and nearly concealed, well clothed to the apex.

Fore wings elongate, narrow at the base, gradually widened towards the anal angle, which is well defined, especially by the form of the projecting cilia, which give the wing a somewhat hatchet-shaped appearance not entirely due to the wing-structure. The apical margin is oblique, the cilia at the apex slightly rounded.

Hind wings about the same width as the widest part of the fore wings, somewhat produced and acuminate at the apex, with very long cilia, especially about the abdominal fold.

This genus approaches *Plutella* (Schranck) and *Plutelloptera* (Chambers), but differs from the first in the form of the palpi, and from the last in the shape and neuration of the wings. It has no "independent elongate triangular cell," as described and figured by Mr. Chambers (Journ. Can. Soc. Nat. Hist. Jan. 1880, pp. 3-23, fig. 7).

## ARÆOLEPIA SUBFASCIELLA, sp. nov. (Plate XXXV. fig. 3, 3a.)

Head rough above and in front, white, with a fuscous streak along the middle of the crest. Antennæ slender, scarcely pubescent, distinctly spotted above with white and fuscous; the basal joint fuscous. No maxillary palpi discernible. Labial palpi short, the second joint roughly clothed above; the apical joint short, partly concealed, white above and at the tips, dingy fuscous at the sides and beneath.

Fore wings elongate, widened towards the apex, the anal angle somewhat distinct; apical margin oblique, not emarginate below the apex; the costal and dorsal margins both somewhat bulged near the base. Ground-colour of the fore wings greyish white, profusely speckled and clouded with greyish fuscous, which is especially collected in two indistinct broken fasciæ obliquely inverted, the one from before, the other from beyond the middle of the costa; the second of these is distinctly interrupted beyond the middle of the disk, the dorsal portion being narrower and less conspicuous than the costal; the first is not distinctly interrupted, but the lower or dorsal portion of it becomes suddenly darker than the costal half. Around the apex and apical margin are several square greyish fuscous spots or patches, running completely through the whitish cilia—three costal,

of which the first forms the outer edge of the second fascia, and about five marginal, the last being in the cilia at the anal angle; these are also conspicuous on the underside.

Hind wings scarcely emarginate below the apex, very pale brownish fuscous, slightly shaded about the margins and at the base of the pale cilia.

The thorax is of the same colour as the darkest portions of the fore wings; the abdomen faintly banded, the anal tufts lightly ochreous.

Expanse 20 millim.

Seventeen specimens, April 16th, 1872, on Currant Creek, an affluent of John Day's River, North Oregon.

#### Genus PLUTELLA (Schrank).

##### PLUTELLA CRUCIFERARUM, Zell. (Wocke, 1626).

This species has been frequently recorded under various names as occurring in North America (see Chambers, Index to described Tineina of United States and Canada, Bull. U.S. Geol. and Geog. Survey, 1878, p 161), as it does also in Europe, Asia, and Africa. I met with it on Mount Shasta, California, in August 1871; but I have no recollection of having found it in the same abundance there as in Europe. My list includes nine specimens.

It is probably the insect referred to by the Editors of the American Naturalist (vol. v. p. 194) under the name of *Tinea spilotella*, which should be added to Mr. Chambers's list of synonyms.

##### PLUTELLA INTERRUPTA, sp. nov. (Plate XXXV. fig. 4.)

*Capite et thorace albidis; antennis albidis, griseo-fusco annulatis et bicinctis; palpis tenuibus albidis; alis anticis subochraceo-albis, dilute griseo-fuscis, ultra medium sublaturatis et in toto margine punctatis, macula parva costali ultra medium griseo-fusca, vitta elongata in plica sub medio cellulæ late interrupta fusca; posticis cum ciliis griseis.*

Head and thorax white; palpi rather slender, white, the second joint touched with greyish fuscous above. Antennæ white, annulated with greyish fuscous, and having two rather wide but inconspicuous rings of greyish fuscous, the first about their middle, the second beyond it.

Fore wings rather yellowish white, very slightly shaded or mottled with pale greyish fuscous, especially beyond the middle; a pale greyish fuscous spot on the costa, at about one third from the apex; the costal, apical, and dorsal margins dotted with greyish fuscous; on the fold is a dark fuscous streak, commencing below the costa near the base, widely interrupted below the middle of the cell, the first portion slightly curved and more than twice as long as the second: hind wings and their cilia grey. Underside greyish fuscous.

Expanse 19 millim.

This is evidently the North-American representative of the European *Plutella annulatella* (Curtis), which it greatly resembles. It differs in the ground-colour of the fore wings being yellowish white

instead of greyish ochreous or "greyish brown," as stated in Mr. Stainton's Manual; but it possesses the same characteristic markings, rendered more conspicuous by the paler ground-colour, but more curtailed and divided; the two rings on the antennæ appear in both species, although, curiously, they are not mentioned by Mr. Stainton either in his 'Insecta Britannica' (Tineina) or in the Manual. The dark shading, which in English specimens covers the whole upper half of the fore wings, is scarcely traceable in the single specimen now before me, which occurred in Southern Oregon at the beginning of May 1871.

*PLUTELLA ALBIDORSELLA*, sp. nov. (Plate XXXV. fig. 5.)

*Capite albo; palpis albis, ad latera brunneo-fusco atinctis; antennis subannulatis, apicem versus bimaculatis; thorace albo; alis anticis albis, litura brunneo-fusca, infra biangulata, ultra medium oblique porrecta, plus quam dimidium costale obtegit, punctis nonnullis in margine apicali et maculis in spatio apicali brunneo-fuscis, ciliis albidis brunneo-fusco interruptis; posticis subcinereis.*

Head white; palpi white, the tuft upon the second joint tinged on the outside with brownish fuscous. Antennæ white at the base, faintly annulated beyond it, with two brownish fuscous spots towards the apex, the first occupying about three joints, the second (nearest to the apex) occupying two. Thorax white. Patagia brownish fuscous at their base, white beyond.

Fore wings white, with a large brownish fuscous costal blotch extending over more than half the wing, having two angles at its lower edge, the outer one of which is the most clearly defined, terminated obliquely beyond the middle. There are a few brownish fuscous dots on the dorsal margin, and some small brownish fuscous blotches on the apical portion of the wing, the whitish cilia being also interrupted by brownish-fuscous spots and streaks.

Hind wings pale cinereous.

Expanse 15 millim.

A single ♂ specimen of this very distinct species occurred in Lake county, California, June 18, 1880.

*PLUTELLA PORRECTELLA*, Linn. (Wocke, 1624).

This species occurred May 31, 1872, in Mendocino county, in August on Mount Shasta, California, and in June in Southern Oregon, but very sparingly: I met with only about six specimens in all. It was first noticed in America by Dr. Clemens, who described it under the name *Plutella vigilaciella*, teste Stainton (Tin. N. Amer. p. 90).

*PLUTELLA VANELLA*, sp. nov. (Plate XXXV. fig. 6.)

*Capite et palpis albidis; antennis annulatis; alis anticis albidis brunneo atomosis, fascia basali triangulari obliqua et plaga media triangulari (in costa macula albida interrupta) brunneis, margine apicali brunneo, anguste adumbrato; posticis cinereis, ciliis paulo dilutioribus.*

Head and palpi whitish, the latter having the tuft on the second joint about the same length as the apical joint. Antennæ annulated with brown and whitish.

Fore wings whitish, dusted with brownish scales, with a brown triangular basal fascia tending obliquely outward from the costa, where it is very wide, and reaches the base of the wing to beyond the first third of the dorsal margin, where it is very narrow. Beyond this, after a conspicuous oblique fascia of the pale ground-colour, is a large brown V-shaped blotch enclosing a whitish triangular costal spot occupying about the middle of the costa; the apical margin is somewhat narrowly shaded with brown; and the whitish cilia are touched with brown, especially towards the anal angle.

Hind wings cinereous, the fringes scarcely paler.

Expanse 16 millim.

May 19, near San Francisco; June 16-22, Lake county; July 15, Shasta county, California.

A single specimen of what I suppose to be a variety of this species occurred on the coast towards the north of California in June 1872. In it the whitish ground-colour of the fore wings is entirely suffused with brown, and the markings, although in exactly the same position as in the normal form, are almost obscured.

The species is much larger than *Plutella hufnagelii*, Zell., and differs in its markings, but is evidently allied to it.

#### Genus CEROSTOMA (Latreille).

The only species, among those described by American authors, which has been placed in this genus up to the present time is *Cerostoma brassicella* (Fitch), which is the well-known cosmopolitan *Plutella cruciferarum* (Zell.), as pointed out by Mr. Stainton (Tin. N. Amer. p. 90), also subsequently by Prof. Zeller (Verh. z.-b. Ges. Wien, 1873, p. 33), and by Mr. Chambers. Mr. Chambers, in his Index to the Tineina of the United States and Canada (Bull. U.S. Geog. & Geol. Surv. vol. iv. no. 1, p. 134), omits to notice that Mr. Walker (Cat. Lep. Het. B. M. xxviii. p. 546) records the occurrence in Hudson's Bay of *Cerostoma xylostella* (Linn.) (*dentella*, Fabr., Staud. and Wöcke Cat. 1652). I have searched for the specimen in the British Museum, and am unable to find it. It is not improbable that one of the allied species, hereinafter described, may have been under Mr. Walker's notice. There is scarcely sufficient evidence, in the absence of the specimen referred to, to establish the occurrence of *Cerostoma xylostella* (Linn.) in America.

Among the numerous Tineidæ which I have received from the Eastern States the genus *Cerostoma* has been conspicuously absent, affording an additional illustration of the divergence of their Lepidopterous fauna from those of California and Oregon.

#### CEROSTOMA INSTABILELLA, Mann.

I am indebted to Mr. Stainton for a specimen of this species, which I have carefully compared with nine examples taken on Mount Shasta,

California, in August 1871. I can detect no appreciable difference between the American and the European forms.

The absence of any defined anal angle in the fore wings, although the cilia somewhat replace it in appearance, will at once enable *C. instabilella* to be distinguished from the following new species (*C. falciferella*, Wlsm.).

*CEROSTOMA FALCIFERELLA*, sp. nov. (Plate XXXV. fig. 7.)

*Capite cum palpis griseo atomosis; alis anticis angustis, quam latioribus quadruplo longioribus, margine apicali falciformi, fulvo-griseis, fasciis duabus a margine dorsali obliquis sub-obsolete; posticis dilute cinereis.*

Head speckled grey; the tufted palpi projecting more than twice the length of the head beyond it, speckled grey.

Fore wings narrow, fully four times as long as wide, the apex extremely falcate, the anal angle well defined, its projecting cilia giving a falciform appearance to the apical margin, rusty grey, with a slight tawny shade upon their costal half not extending to the apex. There are two subobsolete slightly darker fasciæ scarcely distinguishable, except towards the dorsal margin, from which they tend obliquely outwards—the one scarcely beyond the middle, the other halfway between this and the base of the wing; and in some specimens is a narrow and rather angulated tawny fuscous streak running from the end of the cell to a point immediately above the apex, and another from the base of the wing below the middle running parallel to the first half of the dorsal margin.

Hind wings and their cilia pale cinereous.

Expanse 25–28 millims.

Twelve specimens, Mount Shasta, California, August 1871; six specimens, Camp Watson, Northern Oregon, beginning of April.

This species is larger than *C. instabilella*, which usually expands about 21 or 22 millims., and is distinguishable from it by the development of the anal angle of the fore wings and by its broader hind wings.

*CEROSTOMA RADIATELLA* (Donovan).

I took seventeen specimens of this species at Camp Watson in Northern Oregon, which exhibit an equal range of variation to that which is attained by the same species in Europe. They occurred in April 1872, probably after hibernation; but for the most part they are in good condition.

*CEROSTOMA CERVELLA*, sp. nov. (Plate XXXV. fig. 8.)

*Capite dilute cervino, ore et palpis supra pallidioribus; antennis albo et fusco annulatis; alis anticis costa arcuata apice non falcata, cum ciliis, subpurpurascenti-cervinis, striga diffusa purpureo-fusca a tergo basali usque ad apicem divisis, maculis duabus in margine dorsali purpureo-fuscis, prima apud angulum basalem, secunda paulo post medium; posticis dilute fulvido-griseis, ciliis paulo pallidioribus; abdomine supra cinereo, infra albido.*

Head pale fawn-colour, the face somewhat paler. Palpi fawn-colour at the sides and beneath, paler above. Antennæ annulated with whitish and fuscous.

Fore wings with the costa arched, the apex not falcate, together with their cilia pale fawn-colour, more or less suffused or sprinkled with purplish, having a purplish fuscous diffused streak running from before the middle to the apex, dividing the apical half of the wing into two nearly equal parts. There are two purplish fuscous spots on the dorsal margin, the first at the rather conspicuous angle near the base, the second scarcely beyond the middle. The cilia at the anal angle are very long, giving the whole wing a falcate appearance.

Hind wings pale fulvous grey, the cilia somewhat paler.

Abdomen above pale cinereous, beneath (together with the legs) whitish.

760. Expanse 20 millim.

I have two specimens of this species—one reared from a cocoon found on the trunk of an evergreen oak, May 18, near San Francisco, the other from a cocoon found on June 14, on a leaf of *Helianthus bolanderi* (Gray), in Mendocino county, California. The first emerged on May 31, the second on June 27, 1871. It is allied to *Cerostoma parenthesesella*, Linn. (*costella*, Fabr.), Wocke, 1641.

CEROSTOMA SUBLUCELLA, sp. nov. (Plate XXXV. fig. 9.)

*Capite albo; antennis albo et fusco annulatis; thorace cuneum album gerente; alis anticis costa arcuata, apice subfalcato, subfulvo-cervinis, ciliis et patagiis unicoloribus; posticis cum ciliis cinereo-albidis, margine paulo adumbrato.*

Head white; palpi white above, fawn-colour at the sides and beneath. Antennæ annulated with white and fuscous. Thorax with a white wedge-shaped mark pointing backwards from the head.

Fore wings with the costa slightly arched, the apex subfalcate, fawn-colour with a slight tawny gloss; the patagia and cilia are of the same colour. The hind wings and their cilia are dirty whitish, slightly tinged with cinereous along their margins and at the base of the cilia.

Expanse 15–17 millim.

Three males, two females.

Mendocino and Lake counties, June 10 to 17, and Shasta county, California, July 19, 1871.

This species belongs to the same group as *C. sylvella* (Linn.), *C. alpella* (Schiff.), and *C. lucella* (Fab.). It is most nearly allied to the latter, differing from it in the white wedge-shaped thoracic mark, in the darker fawn-colour of the fore wings, which are also of a more uniform width, not attenuated towards the base as in the European species, and in the much paler hind wings.

CEROSTOMA DENTIFERELLA, sp. nov. (Plate XXXV. fig. 10.)

*Capite, thorace et palpis (supra) stramineo-albidis; antennis annulatis; patagiis dilate castaneis. Alis anticis a basi ad apicem purpurascanti-brunneo suffusis; costæ basi, margine*



*dorsali, dente obliquo ultra medium supra projecto, et margine apicali cum ciliis, dilute croceis: posticis stramineo-albidis.*

Head, palpi, and thorax yellowish white, the sides of the palpi and the patagia touched with pale reddish brown; antennæ annulated.

Fore wings pale canary-yellow suffused with bright purplish brown, except at the costal portion of the base and along the dorsal two thirds of the wing; the apical margin and cilia beneath the falcate apex also maintain the pale ground-colour, and the dark portion of the wing is incised on its lower edge beyond the middle by an oblique tooth-shaped projection from the pale dorsal space.

Hind wings and cilia straw-white.

Abdomen and legs whitish grey.

Expanse 20-22 millim.

Mount Shasta, California, August 1871.

This and the two following species belong to the group of which *C. dentella*, Fab. (*xylostella*, Linn.), No. 1652 of Wocke's Cat., is the type, and are nearly allied to that species.

*CEROSTOMA CANARIELLA*, sp. nov. (Plate XXXV. fig. 11.)

*Antennis annulatis; palpis, capite, thorace et alis anticis dilute croceis, labe subangulata apud medium et ciliis ad apicem falcatum subcastaneis; alis posticis cum ciliis stramineo-albidis.*

Antennæ annulated with yellowish white and chestnut-brown. Palpi pale yellowish, slightly tinged with brown at the sides, projecting nearly three times the length of the head beyond it. Head, thorax, and fore wings pale canary-yellow; the fore wings strongly falcate at the apex, having a subangulate and rather diffused pale chestnut-brown blotch on the cell about the middle, often with a few blackish scales about the angle on the middle of its lower edge; in good fresh specimens a few single pale chestnut-brown scales are thinly scattered over the surface of the pale ground-colour; cilia yellow, tinged at the tips with brownish, especially at the extreme apex. Abdomen, hind wings, and cilia straw-white.

Expanse 19-21 millim.

Scott's Valley, Lake county, May 18, 1871.

Several specimens flying among *Symphoricarpus mollis* (Nuttal).

*CEROSTOMA FRUSTELLA*, sp. nov. (Plate XXXV. fig. 12.)

*Antennis annulatis; capite stramineo; palpis externe brunneis, interne albido-stramineis; alis anticis croceo-flavidis, rufobrunneo suffusis et partim lineatis (excepto margine dorsali dilute croceo); posticis cum ciliis dilutissime griseis.*

Head yellowish above, paler in front; palpi yellowish white above and on their inner sides, tinged with brown outwardly; antennæ annulated; the middle of the thorax whitish, the patagia reddish brown.

Fore wings pale yellow, suffused and partly streaked with reddish brown, except at the base of the costa and along the dorsal third of the wing, which is pale canary-yellow, and is separated from the darker portion of the wing by a whitish streak along the basal half. The brown shading is most conspicuous along the fold, where it ex-

tends in a strong streak from the base to beyond the middle, and is diffused in the form of ill-defined lines upwards and outwards to the middle of the costa and to the apical margin. In some specimens the costa is touched with whitish on its extreme edge before the middle. Cilia reddish brown.

Hind wings and cilia very pale grey.

Expanse 19–21 millim.

Twenty-six specimens, Shasta county, California, July 28, 1871.

EUCERATIA, gen. nov.

*Capilli hirsuti. Ocelli nulli. Palpi maxillares nulli. Palpi labiales longe porrecti, hirsute vestiti, articulo secundo supra floccoso, tertio basi incrassato, quam secundus paulo longiore. Antennæ pubescentes, articulis alternis aliquid incrassatis. Alæ anticæ costa paulum arcuata, amplæ, margine apicali obliquo, angulo anali subconspicuo. Alæ posticæ plenæ, ciliis longis, apice vix acuminato.*

Head and face rough with tufts of long scales projecting forwards and upwards. Ocelli none; maxillary palpi none. Antennæ pubescent, slender; basal joint somewhat enlarged, the alternate joints slightly thickened by groups of appressed scales above. Palpi straight, projecting three times the length of the head in front, hirsute, with the first joint small; second scarcely thickened, tufted, especially on its upperside, with long bristling scales projecting forwards; third rather longer and slightly more slender than the second, enlarged at the extreme base, also roughly clothed, having a tendency to turn outwards as in *Topeutis* (Zeller).

Fore wings ample, with the costa slightly arched, the apical margin oblique, the apex extended, and the anal angle not well defined.

EUCERATIA CASTELLA, sp. nov. (Plate XXXV. fig. 13, 13a, 3b, 13c, 13d.)

*Capite et thorace albis; antennis albis, fusco supra maculatis; palpis porrectis, hirsutis, albis, fusco adpersis; alis anticis albis, squamis brunneo-fuscis sparse irroratis, ciliis albis fusco terminatis; alis posticis dilute brunneo-fuscis, ante medium albidis, ciliis albis; anticis infra dilute brunneo-fuscis, albo marginatis; posticis infra albidis paulo fuscescentibus.*

Head, face, and thorax white. Antennæ pubescent, white, conspicuously dotted above with brownish fuscous beyond the base, tinged with brownish fuscous beneath. Palpi projecting nearly three times the length of the head beyond it, with the first joint small, second joint scarcely thickened, tufted; apical joint of even size, slightly longer than the second, white, clothed with long coarse scales, most of which, especially at the sides and beneath, are tipped with brownish fuscous, the tuft on the second joint and the apical joint itself having a tendency to turn outwards as in the genus *Topeutis*, Zell.

Fore wings white, sparsely irrorated with distinct brownish fuscous scales; cilia white, tipped with brownish fuscous. Hind wings white at the base and about the abdominal margin, shading off into

pale brownish fuscous, which covers more than their apical half; cilia white, with a slight brownish fuscous line towards their base around the apex. Underside of fore wings brownish fuscous, with all the margins white; underside of hind wings white tinged with brownish fuscous.

Legs and abdomen yellowish white.

Expanse 17-21 millim.

Several specimens near San Francisco and on Mount Shasta, May and August, 1871.

*EUCERATIA SECURELLA*, sp. nov. (Plate XXXV. fig. 14.)

*Capite et palpis hirsutis, griseo-albidis; antennis annulatis; alis anticis a basi dilatatis (costa post medium arcuata, margine apicali concavo), griseo-albidis, brunneo-fusco dilute suffusis vel lituratis, striga ultra medium plicæ oblique transversa fusca, striga angulata diffusa apud finem cellulæ postice subfusco marginata, litura costali post medium subconspicua, ciliis brunneo-fusco et albido alternantibus; alis posticis saturate albido-griseis.*

Head and palpi very roughly clothed, greyish white above, brownish beneath; antennæ annulated; thorax greyish white.

Fore wings greyish white, shaded and sometimes blotched with greyish and brownish fuscous, narrow at the base, expanding outwardly, rather hatchet-shaped, having the costa somewhat arched beyond the middle, the apical margin slightly concave. The species is somewhat variable. In some specimens the most conspicuous markings are an oblique detached transverse fuscous streak crossing beyond the middle of the fold (in one example this streak is divided into two spots), a pale whitish angulated streak at the posterior angle of the cell, deflected and diffused outwardly towards the anal angle, and a brownish fuscous, more or less conspicuous blotch slightly beyond the middle of the costa; in others this blotch is extended and reduplicated towards the apical portion of the wing, giving it an obliquely bifasciated appearance. The cilia are chequered with alternate white and brownish or greyish fuscous spots, extending round the apex. Underside unicolorous greyish fuscous, with chequered cilia.

Hind wings pale whitish grey, the extreme margin faintly shaded; underside pale whitish grey.

Expanse 25 millim.

Seventeen specimens, taken in Sonoma county, California, late in May 1871.

It is larger than the preceding species, and has the apical margin slightly more concave; but in the antennæ and palpi, as well as in their general structure, they are very similar.

#### Genus *DEPRESSARIA* (Haw.).

Mr. Chambers, in his List of described Tineina of the United States and Canada, in the Bulletin U.S. Geol. and Geogr. Surv. (vol. ix. 1878), enumerates twenty-seven species originally supposed to belong to this

genus. Of these, eleven species described by Mr. Chambers have been removed by himself to other genera; and he has suggested that three more of his species should probably also be transferred to *Gelechia*. One species is found to be identical with a known European form, leaving twelve species on the list. To these must be added three others described by Mr. Walker, of which Mr. Chambers makes no mention.

*Depressaria georgiella*, Walk. Cat. Lep. Het. B. M. xxxv. p. 1827, belongs to the genus *Trichotaphe* (Clem.); but I am unable at present to determine the species. It should more properly be included in the genus *Gelechia* than in *Depressaria*.

*Depressaria clausella*, Walk. Cat. Lep. Het. B. M. xxix. p. 564, is evidently *D. cinereocostella* (Clem.), which is well figured in the Annals of the Lyceum of Nat. Hist. New York, vol. ix. The preface to the volume of Mr. Walker's Catalogue in which his description appears is dated March 7, 1864. The paper in which Dr. Clemens described it was also published at some time during the month of March in the same year. Full references are given by Mr. Chambers to the several published notices of this species, with the exception of that by Mr. Walker.

*Depressaria confertella*, Walk. Cat. Lep. Het. B. M. xxix. p. 563, is a *Cryptolechia*, and is identical with *Cryptolechia tentoriferella*, originally described by Dr. Clemens as *Machimia tentoriferella*, Clem. (Proc. Ac. Nat. Sci. Phil. 1860, p. 212). It has also since been described by Mr. Chambers under the name *Depressaria fernaldella*, which is contained in his list of the genus. I am assured by Prof. Fernald that he is well acquainted with the species, and that it agrees with a specimen of the true *C. tentoriferella* which I received from him for comparison with Mr. Walker's *D. confertella*; but I am aware that Mr. Chambers himself (U.S. Geol. and Geogr. Surv.) still doubts their identity. Prof. Zeller (Verh. z.-b. Ges. Wien, 1873, p. 40) first pointed out that it should properly be included in the genus *Cryptolechia*. After eliminating this, we have thus eleven unquestioned species of the genus *Depressaria* recorded as occurring in North America:—

<sup>1</sup> <i>D. atrodorsella</i> , Clem.		<sup>2</sup> <i>D. hilarella</i> , Zell.
{ <sup>1</sup> <i>D. cinereocostella</i> , Clem.		<sup>1</sup> <i>D. lecontella</i> , Clem.
{ <i>D. clausella</i> , Walk.		<i>D. nebulosa</i> , Zell.
<sup>2</sup> <i>D. eupatoriella</i> , Cham.		<sup>1</sup> <i>D. pulvipumella</i> , Clem.
<sup>1</sup> <i>D. grotella</i> , Robinson.		<i>D. robinella</i> , Packard.
<sup>3</sup> <i>D. heracliana</i> , De G.		<i>D. scabrella</i> , Zell.

Doubtfully referred to *Gelechia* by Mr. Chambers (Bull. U.S. Geol. and Geogr. Surv. Vol. p. 138):—

<i>D.?</i> <i>pallidochrella</i> , Cham.		<i>D.?</i> <i>versicolorella</i> , Cham.
<i>D.?</i> <i>rileyella</i> , Cham.		

<sup>1</sup> These are figured in the Annals of the Lyceum of Natural History, New York, vol. ix.

<sup>2</sup> Of these I have seen specimens in Mr. Stainton's collection.

<sup>3</sup> Also European.

To these may now be added the following from the Western States:—

*DEPRESSARIA SABULELLA*, sp. nov. (Plate XXXVI. fig. 1.)

*Capite et palpis (articulo apicali fusco annulato) saturate ochreis; antennis fuscis; alis anticis saturate ochreis, costæ basi fusca, punctis quatuor disci fuscis quorum duobus anticis amplius diversis minoribus, nebula subconspicua interjacente fusca; posticis dilute griseo-ochraceis.*

Head and thorax very pale ochreous; palpi the same, but with a slight fuscous annulation on the apical joint, which is also slightly tipped with fuscous; antennæ fuscous.

Fore wings very pale ochreous, with the base of the costa fuscous; four small fuscous discal spots, of which the two upper ones are further apart and less conspicuous than the two lower ones, which are also both situated nearer to the middle of the wing; between the two upper dots is an inconspicuous fuscous shade; some diffused inconspicuous fuscous spots around the apical margin, as well as on the hind margin of the pale greyish ochreous and rather shining hind wings. Cilia of hind wings very pale.

Expanse 24 millim.

One specimen, in Mendocino county, California, June 12, 1871.

This species is allied to *Depressaria subpropinquella* (Stn.), which is of a generally darker hue, and lacks the two outer dots and the fuscous base to the costa. It differs from *Depressaria nanatella*, Stn., also in the number of its discal dots, and in the less mottled appearance of the fore wings.

In a single specimen taken on Mt. Shasta in August, the wings are shorter, the discal spots and the fuscous base to the costa are entirely absent, the costa is mottled, the apical margin immaculate; moreover the cilia of the fore wings are slightly rosy, the cilia of the hind wings being pale yellowish. I am disposed to regard it as a distinct species.

*DEPRESSARIA ARGILLACEA*, sp. nov. (Plate XXXVI. fig. 2.)

*Capite, palpis et antennis dilute griseo-ochreis; alis anticis dilute griseo-ochreis, fusco atomosis, plaga basali diluta in margine costali diffusa, postice fusco marginata, punctis duobus discalibus ante medium fuscis, puncto ad finem cellulæ subalbido, nebula fusca mediana antice apposita; posticis saturate argillaceis.*

Head, palpi, antennæ, and thorax pale greyish ochreous, the face slightly paler.

Fore wings pale greyish ochreous (a cold stone- or clay-colour), irrorated with blackish fuscous scales; the pale basal patch is diffused along the costal margin, but bounded below it by an outwardly diffused but inwardly distinct blackish fuscous shade; before the middle are two fuscous dots, sometimes containing some brownish scales placed obliquely, the upper one being nearest to the base; these are followed by a blackish fuscous cloud above the middle of

the wing, which reaches to a pale dirty-whitish dot immediately beyond and below it, situated about the end of the cell, and surrounded by some brownish scales. In some specimens is a faint indication of a second pale discal dot preceding it; and in others the two fuscous dots are almost obsolete.

Hind wings very pale greyish ochreous; cilia of the same colour as the wings.

Expanse 21 millim.

The species occurred at Newville, Tehama county, California, July 5, 1871, and in the neighbourhood of Fort Klamath, in Oregon, at the end of September, also at Old Fort Watson, in Northern Oregon, in April of the following year, but was not abundant.

It approaches *D. ocellana* (Fab.) and *D. yeatiana* (Fab.), but differs from the latter in colour, and in having the fore wings wider and less rounded at the apex.

DEPRESSARIA ARNICELLA, sp. nov. (Plate XXXVI. fig. 3.)

*Capite subochraceo; palpis subochraceis, articulo apicali annulato; antennis fuscescentibus; alis anticis saturate ochreis, fusco dilute sublaturatis, punctis tribus discalibus et nebula subconspicua fuscescentibus, costa et margine apicali fusco punctatis, ciliis rufescentibus; alis posticis griseo-sericeis, ciliis rufescentibus.*

Head and palpi greyish ochreous, the apical joint of the palpi annulated with fuscous; antennæ greyish fuscous.

Fore wings pale ochreous, more or less suffused and blotched with greyish fuscous; three rather fuscous discal dots, two about the basal third of the wing, of which the upper one is nearer to the base than the lower, and one towards the end of the cell; between them lies a slight greyish fuscous cloud, sometimes reaching to the costa; the pale basal patch is not very clearly defined, but extends above the cell along the basal third of the costa; the costal and apical margins diffusely dotted with greyish fuscous. Cilia rosy reddish.

Hind wings shining grey, with rosy reddish cilia.

Expanse 22 millim.

Five specimens, bred from larvæ feeding on *Arnica angustifolia* (Vahl), on Mount Shasta, California, August 1871. Allied to *Depressaria adspersella* (Kollar), but without the distinct black costal dots of that species.

DEPRESSARIA KLAMATHIANA, sp. nov. (Plate XXXVI. fig. 4.)

*Capite griseo; palpis griseis, articulo apicali fusco annulato; thorace griseo; alis anticis rufo-griseis, plaga basali ad medium costæ antice producta albo-grisea, postice subrufo marginata, punctis duobus discalibus nigris erectis et punctulo albido apud finem cellulæ, ciliis rufescentibus; posticis albido-griseis, ciliis dilute rufescentibus.*

Head grey; palpi grey, annulated on the apical joint with fuscous; antennæ pale reddish grey.

Fore wings reddish grey, with a whitish grey basal patch pro-

longed on the costal third nearly to the middle of the wing, distinctly margined beneath it by a strong reddish shade, outwardly diffused and blended with the paler (more greyish) apical half of the wing; the costa slightly speckled with reddish grey; two blackish discal spots of raised scales scarcely beyond the basal third, the lower one being the furthest from the base and slightly elongate; beyond these, about the end of the cell, is a whitish dot, surrounded by a few fuscous scales, sometimes preceded by a similar but even less conspicuous dot on the cell; some fuscous scales are distributed around the apical margin. Cilia dull reddish.

Hind wings whitish grey, with rather rosy cilia.

Expanse 21 millim.

Five specimens taken near Fort Klamath, in Oregon, in the autumn of 1871. One only is in good condition.

This species appears to be allied to *Depressaria ciniflonella* (Zeller), to which it bears some resemblance; but it is less mottled, and has more red about it; moreover the fore wings are less attenuated and elongate.

*DEPRESSARIA POSTICELLA*, sp. nov. (Plate XXXVI. fig. 5.)

*Capite et thorace subochraceis; palpis concoloribus, articulo secundo externe fusco adperso; antennis fuscis; alis anticis subochraceis, rufo paulum suffusis, fusco irroratis, puncto disci ante medium fusco, punctis marginalibus diffusis fuscis, nebula ante angulum analem (disci dimidium costale nunquam attingente) fusca, ciliis subfuscis (aliquando subroseis).*

Head and thorax rather dull ochreous; palpi of the same colour, sprinkled externally on the second joint with fuscous; antennæ fuscous.

Fore wings rather dull ochreous, sprinkled with fuscous scales, and somewhat suffused with a reddish tinge in some specimens, with a small fuscous spot at the base of the costa; a fuscous dot on the cell before the middle, some diffused fuscous dots along the apical margin, and a fuscous cloud or blotch before the anal angle, reaching from the dorsal margin nearly to the middle of the wing, but not attaining the costal half. Cilia with a fuscous or a rosy tinge in different specimens.

Hind wings greyish; the cilia rosy; the anal tuft sometimes rosy.

Expanse 18-21 millim.

I met with this species in Lake county, California, on June 15 and June 30, 1871, and in Southern Oregon in May 1872. I also bred a specimen from among larvæ, feeding together with those of another species of *Depressaria* (*psoraliella*) on *Psoralia physodes* (Dougl.), the larva being found in Mendocino county on May 24, the perfect insect appearing on June 13. I am indebted to the kindness of Prof. Henry N. Bolander, of San Francisco, for the determination of this and other plants mentioned in this paper.

The species differs from *Depressaria angelicella*, Hüb. (Staud. & Wocke, Cat. n. 1736), in the absence of a dot on the fold, and in the

position of the fuscous cloud or blotch, which in that species is situated about halfway between the costal and dorsal margins.

DEPRESSARIA NUBIFERELLA, sp. nov. (Plate XXXVI. fig. 6.)

*Capite et thorace ochreis; palpis ochreis, macula parva rufo-brunnea sub articulo apicali; antennis rufo-brunneis; alis anticis ochreis, ultra plagam basalem rufo-brunneo suffusis, litura ultra medium costam nec marginem dorsalem attingente subobliqua rufo-brunnea, margine apicali rufo-brunneo, costa maculata; alis posticis dilute fusco-griseis.*

Head and thorax ochreous, sometimes with a slight reddish tinge; palpi ochreous, recurved, reaching over the vertex, a small reddish spot on the underside near the end of the acuminate apical joint; antennæ reddish brown.

Fore wings ochreous, more or less suffused (beyond the pale basal patch, which does not reach to the costa) with brownish red, which forms a conspicuous darkly centred shade about the end of the cell, reaching to the costa but not to the dorsal margin. This colour is also conspicuous in a number of small spots along the costa, and in a line which runs round the apex, along the apical margin, to the anal angle; the ochreous cilia are more or less shaded with the same colour, especially at their tips; and in some specimens is an indication of two small discal dots situated before the dark central shade, and rather above the middle of the wing, the upper one being nearer to the base than the lower.

Hind wings pale greyish, sometimes with a very faint reddish tinge. Abdomen about the same colour as the fore wings.

In some specimens the reddish tint suffused over the fore wings is replaced by a browner hue, rendering the pale ochreous ground-colour more conspicuous.

Two specimens bred in June from larvæ found feeding on a species of *Hypericum*, Rouge River, Oregon, May 22, 1872; others were taken in Mendocino and Shasta counties, California, in June and July 1871.

This species appears to be somewhat allied to *D. astantiæ* (Hein.), but differs from it in the dark central shade being somewhat less oblique than in that species, in the pale thorax not being conspicuously shaded with brown, and in the absence of the white discal dots and distinct dark marginal dots which distinguish that species.

DEPRESSARIA CILIELLA (Stn.)

This species occurred in North Oregon in April 1872. I met with three specimens only. The commoner European form *D. applanata* (Fab.), of which it is sometimes supposed to be merely a variety, was conspicuously absent, nor have I met with it in any American collection.

DEPRESSARIA YEATIANA (Fab.).

I took a single specimen towards the end of September 1871, near



Fort Klamath, Oregon. I have also received the species from Mr. Belfrage, from Texas, taken at the beginning of August.

DEPRESSARIA NERVOSA (Haw.).

Two specimens, undistinguishable from English examples of this species, occurred in Southern Oregon at the beginning of May 1872.

DEPRESSARIA PSORALIELLA, sp. nov. (Plate XXXVI. fig. 7.)

*Capite sordide griseo; palpis subrufescenti-griseis, articulo apicali annulato; antennis fusco-griseis; thorace griseo; alis anticis basi grisea, rufo-brunneis, griseo et nigro (præcipue costam versus) atomosis, punctulis duobus vel tribus disci subobsoletis; posticis subfusco-griseis, ciliis rufescentibus.*

Head dull greyish, sometimes sprinkled with reddish; palpi greyish above, reddish beneath, the apical joint annulated; antennæ greyish fuscous. Thorax grey, slightly tinged with reddish immediately behind the head.

Fore wings reddish brown, sprinkled with greyish and blackish fuscous atoms, especially towards the costa; the basal patch somewhat clearly defined, grey, extending slightly outwards towards the costa, containing no dark spot on the dorsal margin as in the allied species *D. cnicella*, Tr. A series of three inconspicuous whitish dots along the cell are sometimes almost entirely obsolete, the first and last only being slightly visible in two of my bred specimens. Cilia reddish.

Hind wings rather fuscous grey, with reddish cilia.

Expanse 20–24 millim.

Four specimens bred from larvæ found drawing together the terminal shoots of *Psoralea physodes* (Dougl.), May 21, Sonoma county, California; the perfect insects emerged June 5 to 8. Allied to *D. hepatariella*, Zell., and *D. cnicella*, Tr.

DEPRESSARIA PARILELLA (Treitschke).

A single specimen from the Eastern States (locality uncertain) agrees fairly well with the description of this species. I have compared it not only with the figures given by Herrich-Schäffer and by Duponchel, but also with some European examples in the British Museum.

It differs from these in having the pale head, thorax, and basal patch less clearly distinguishable from the main colour of the wing, in the discal spots being almost obsolete, and in the cilia being unicolorous with the fore wings.

From the Western States I have other specimens, one of which, taken in California in the summer of 1871, has the pale head, thorax, and basal patch as clearly defined as in the European *parilella*; moreover the pale discal spot is visible although inconspicuous; but the colour of the fore wings is much darker, and may be described as

dull purplish fuscous rather than yellowish brown; the palpi also are much mottled and faintly annulated with purplish fuscous.

Other specimens, taken in Northern Oregon in 1872, have the pale head, thorax, and basal patch much obscured by the purplish fuscous hue of the fore wings, and the pale discal spot obsolete; but these have probably lost some of their brilliancy during hibernation.

In all these the two blackish spots before the middle and the blackish speckling beyond it are clearly distinguishable. On the whole it is doubtful whether the species should or should not be regarded as distinct from its European representative. I have no doubt that the eastern and western American examples are mere local forms of the same insect, although the ground-colour of the fore wings of the specimen from the east accords much more nearly with that of the true *Depressaria parilella*.

If an investigation of its habits should lead to the conclusion that the American form is a distinct species, I would propose for it the name *Depressaria novi-mundi*.

#### DEPRESSARIA EMERITELLA (Stn.).

I bred four specimens of this rather rare European *Depressaria* from larvæ found feeding on leaves of what may have been a species of *Tanacetum*, in May 1872, on Rouge river, in Southern Oregon. I cannot find that I have preserved any specimen of the food-plant; but in my notes it is recorded as an *Artemisia*.

The specimens agree to the most minute particular with Mr. Stainton's description of this species.

#### DEPRESSARIA UMBRATICOSTELLA, sp. nov. (Plate XXXVI. fig. 8.)

*Capite et palpis sordide ochraceis; antennis fuscis; thorace nigro-fusco; alis anticis sordide ochreis, macula basali, punctulis duobus disci, punctis costalibus et marginalibus diffusis et nebula costæ mediæ nigro-fuscis, margine apicali late subfusco adumbrato, ciliis fuscescentibus; posticis griseo-sericeis.*

Head and palpi dull ochreous, the latter dusted with fuscous; antennæ fuscous. Thorax blackish fuscous.

Fore wings dull ochreous, slightly paler than the head, with a short, blackish fuscous basal patch, wider on the dorsal than on the costal margin; several minute, diffused, blackish fuscous spots along the costal and apical margins; a conspicuous outwardly diffused blackish fuscous shade on the middle of the costa, preceded by two minute discal dots of the same colour, of which the upper one is nearer to the base than the lower, and a more or less conspicuous wide subfuscous shade around the apical margin, reaching from the costal patch to the middle of the dorsal margin. Cilia subfuscous.

Hind wings rather shining greyish.

Expanse 16-19 millim.

Taken on Mount Shasta, California, in August 1871, and in Northern Oregon in April 1872, where it was not uncommon. It

has somewhat the same fashion of ornamentation as *Depressaria atrodorsella*, Clem.; but it is a much smaller insect, with narrower wings, more rounded at the apex and anal angle, and with the costal blotch situated nearer to the base.

Genus *MENESTA* (Clemens).

*MENESTA TORTRICIFORMELLA*, Clem. Proc. Acad. Nat. Sci. Phil. 1860, p. 213; Stn., Tin. Nor. Am. p. 151.

*Menestra tortriciformella*, Cham., Bull. U.S. Geog. & Geol. Surv. vol. iv. p. 157.

*Gelechia liturella*, Walk., Cat. Lep. Hct. B. M. xxix. p. 591.

This is evidently the species described by Mr. Walker as *Gelechia liturella*. His type, which is in the British Museum, is in sufficiently good condition to be easily identified. It agrees with others verified by comparison with what I believe to have been Dr. Clemens's typical specimen in the collection of the American Entomological Society at Philadelphia.

*MENESTA RUBESCENS*, sp. nov. (Plate XXXVI. fig. 9.)

*Capite, thorace et antennis dilute subochraceo-cinereis; palpis diversis, subulbidis, articulo apicali brunneo-fusco adumbrato, acuminato; alis anticis a basi dilute subochraceo-cinerea rubescentibus, puncto discali subobsoleto fusciscentibus; posticis griseis.*

Head, thorax, and base of the fore wings pale stone-grey; palpi diverging, whitish, the apical joint shaded with brownish fuscous, the tongue scaled with brownish fuscous at the base.

Fore wings shaded off from the pale stone-grey base into pale brick-reddish, becoming almost purplish red before the apical margin; a faint indication of a small subfuscous spot at the end of the cell.

Hind wings greyish.

Expanse 11 millim.

A single specimen received from Mr. Belfrage, from Texas, labelled "August 16."

Genus *GLYPHIPTERYX* (Hübner).

*GLYPHIPTERYX REGALIS*, sp. nov. (Plate XXXVI. fig. 10.)

*Capite; palpis et antennis griseo-sericeis; alis anticis aurantiacis, plaga dorsi basis, striga basali a costa obliqua, fascia antemediana et strigis post medium costalibus tribus nitentibus dilute griseo-chalybeis, ciliis fusciscentibus sub apice albedo interruptis, macula elongata supra angulum analem nigra, antice marginem apicalem versus attenuata, punctis quatuor metallice albedo-chalybeis ornata, spatio supra eam subochraceo-griseo, strigulis plurimis transversis nigro-fuscis; posticis aurantiaco-brunneis.*

Head small, shining greyish; antennæ greyish, scarcely pubescent; palpi short, slightly upturned, shining greyish above, whiter beneath. Thorax orange, greyish in the middle, whitish beneath.

Fore wings bright orange, with shining steel-grey bands or streaks

and four bright metallic steel-white dots set in an elongate black patch above the anal angle. The first steel-grey streak, which is much dilated towards the base of the costa, reaches obliquely to the outer extremity of a steel-grey patch at the base of the dorsal margin; beyond it, before the middle of the wing, is a narrow, straight, pale steel-grey fascia with rather darkened margins; slightly beyond the middle of the costa is another pale steel-grey mark, expanding immediately below the costa and diffused into a pale greyish ochreous patch, much occupied by slender, transverse, blackish fuscous streaks; beyond this, again, is a bright steel-blue streak, whitish towards the costa, and reaching to a whitish interruption in the fuscous cilia above the middle of the apical margin; a shorter and paler steel-grey streak lies immediately before the apex, but does not quite reach the apical margin. The costa is narrowly shaded with blackish fuscous, especially beyond the middle. The elongate black patch above the anal angle, containing four steel-white metallic dots, stretches from the dorsal margin before the anal angle to near the middle of the apical margin, in which direction it is somewhat attenuated; there are two small black marginal dots below it. Underside with two white costal streaks towards the apex, preceded by two white costal spots, and with a short white streak from the apical margin.

Expanse 17 millim.

This species differs from *Glyphipteryx loricatella* (Tr.), in the more rounded hind wings, which are not indented beyond the abdominal angle, as well as in the absence of brilliant metallic endings to the costal streaks, which, however, are the same in number and position. It differs also in the absence of two white dorsal spots, and in the black patch being narrower and running obliquely instead of parallel to the dorsal margin. The hind wings are paler, and the fore wings a lighter orange-colour than in the European species.

In general appearance it exhibits some approach to some of the *Hydrocampidæ*. The small head and the form of the palpi, as well as the character of the ornamentation, cannot fail to remind us of *Cataclysta* (H.-S.) and some allied Asiatic genera.

I have met with only one specimen, taken on Mount Shasta, California, in August 1871, and slightly denuded at the time of its capture.

GLYPHIPTERYX CALIFORNIAE, sp. nov. (Plate XXXVI. fig. 11.)

*Capite, thorace et antennis ochreo-griseis; palpis griseo-albidis; alis anticis subaeneis brunneo suffusis, litura dorsali basis albida, strigis, quinque costalibus, una dorsali, albidis brunneo utrinque marginatis et roseo chalybeo finitis, macula dorsali albida et tribus oblique supra eam dispositis roseo-chalybeis, una supra angulum analem et una sub apice (ciliis albido interruptis) roseo-chalybeis, ciliis aeneo-brunneis albido terminatis; alis posticis brunneis; tibiis et tarsis posticis brunneis, albido annulatis.*

Head, thorax, and antennæ yellowish grey; palpi greyish white.

Fore wings æneous, or bronzy yellowish suffused with brown; a partially interrupted oblique whitish blotch from near the base of the dorsal margin joins at its outer extremity a somewhat similar diffused whitish streak arising at the middle of the base, and extending less than one third along the wing; beyond it from the costa is a conspicuous oblique outwardly curved white streak extending to the middle of the wing, sometimes touched with rosy steel-colour at its extreme point and margined with brown on both sides; beyond this, also from the costa, are four shorter whitish streaks, brown-margined and tipped with iridescent rosy steel-colour, the first pair of these streaks being further apart and more oblique than the second pair. On the dorsal margin is an oblique whitish streak situated rather beyond the first costal streak, tipped with rosy steel-colour, and followed by a small whitish dorsal spot before the anal angle; these are also margined with brown on both sides. Above the dorsal spot, where the wing is much suffused with brown, are three iridescent rosy steel-coloured roundish spots distributed in an outwardly oblique line; there are also two similar spots—one above the anal angle, and one below the apex (where the cilia are interrupted by a narrow whitish streak). Cilia brown at the base, whitish beyond, with a projecting brown streak from the blackish extreme apex, giving a falcate appearance.

Hind wings brown.

Underside brown, with one marginal and two costal white streaks near the apex, and two or three slight whitish costal spots preceding them.

Posterior tibiæ and tarsi brown, annulated with whitish.

Expanse 11 millim.

Taken in Shasta county, California, about the middle of July 1871, and described from a series of ten specimens.

*GLYPHIPTERYX BIFASCIATA*, sp. nov. (Plate XXXVI. fig. 12.)

*Capite brunneo; antennis dilute brunneis, fusco supra submaculatis; palpis albidis fusco tricinctis; alis anticis subæneo-brunneis, fascia interna basali obliqua, fascia mediana recta et strigulis tribus costalibus post medium albis, serie punctorum chalybeorum quinque vel sex apud angulum analem nigro succinatorum, puncto roseo-chalybeo ciliis sub apice apposito; posticis brunneis.*

Head brownish; antennæ brownish, faintly spotted above with fuscous. Palpi whitish, with three more or less distinct brownish fuscous rings.

The anterior wings bronzy brown, with two white fasciæ, the first tending obliquely outwards towards the costa (in one specimen obliterated before reaching it), the second about the middle, straight; beyond this on the costa are three short, white, slightly oblique streaks, usually tipped with a few rosy metallic scales; the outer streak is the largest, and nearly reaches a rosy steel-coloured metallic spot which joins a whitish streak in the cilia below the apex; around the anal angle is a black elongate marginal patch preceded by two rosy steel-coloured metallic spots one above the other, and contain-

ing four (sometimes three) bright metallic spots, above which the wing is sprinkled with greyish scales. Cilia brown at the base, whitish grey beyond. Underside with some slight costal spots and one costal and one apical streak white.

Hind wings brown; cilia the same.

Expanse 11-13 millim.

Two specimens taken near San Francisco in May, and three near Mount Shasta, California, at the end of July 1871.

GLYPHIPTERYX UNIFASCIATA, sp. nov. (Plate XXXVI. fig. 13.)

*Capite et antennis sordide grisescenti-brunneis; palpis sordide albidis, brunneo maculatis et annulatis; alis anticis brunneis, striga dorsali prope basin externe obliqua, fascia subobliqua ante medium et strigulis ultra medium tribus costalibus et una dorsali albis, serie punctorum quinque chalybeo-metallicis apud angulum analem nigro succinctis, ciliis brunneis albido terminatis, sub apice albido interruptis, macula roseo-chalybea adjacente; posticis brunneis.*

Head and antennæ dull greyish brown; palpi dirty whitish, spotted or annulated with brownish.

Fore wings brown, an outwardly oblique white dorsal streak reaching about halfway across the wing; a slightly oblique white fascia before the middle, tending outwards from the costa to the dorsal margin, followed by four rather straight white costal streaks, of which the first is the longest and reaches nearly to a meeting with an opposite straight white dorsal streak; a series of four shining metallic dots in an elongate black marginal patch near the anal angle, above the first of which is a fifth detached shining metallic spot; below the apex, joining a white streak in the cilia is a rosy metallic spot; some bright rosy metallic scales lie also about the ends of the white costal streaks.

Hind wings brown.

Expanse 10-11 millim.

Two specimens near San Francisco, May 19, 1871. It differs from the preceding species (*G. bifasciata*) in having four instead of three costal streaks on the upperside, and three instead of one on the underside, also in the first fascia extending only half across the wing.

GLYPHIPTERYX QUINQUEFERELLA, sp. nov. (Plate XXXVI. fig. 14.)

*Capite et palpis griseis; antennis griseis, longe ciliatis, interne albido punctatis; alis anticis (apice rotundato, basi flavida) griseo et fusco atomosis, signum numerale Romanum V flavidum, griseo marginatum in medio ferentibus, serie marginali punctorum quatuor nitide chalybeorum apud angulum analem, puncto quoque antice latius nigro circumdato; posticis brunneo-fuscis.*

Head and palpi grey. Antennæ grey, obscurely dotted inwardly with whitish, clothed with rather long cilia.

Fore wings rounded at the apex, with the base yellowish, intersected longitudinally with obscure streaks of greyish scales; beyond the yellowish basal patch is a distinct yellowish **V**, universally margined with whitish grey; beyond it the apical half of the wing is whitish grey irrorated with fuscous scales, with a slight yellowish oblique streak immediately before the pale extreme apex; about the anal angle is a series of four distinct, shining, whitish, steel-coloured, metallic marginal dots, each surrounded by a separate deep-black border which is wider above than below them; above the outer spots are some bluish metallic scales at the base of the greyish fuscous cilia; underside unicolorous brownish.

Hind wings brownish fuscous.

Expanse 13 millim.

Eight specimens taken, July 15, 1871, Shasta county, California.

#### Genus HELIODINES (Stainton).

HELIODINES EXTRANEELLA, sp. nov. (Plate XXXVI. fig. 15.)

*Alis anticis cupreo-aurantiacis, basi fusca, maculis tribus costalibus una dorsali argenteo-metallicis, maculis duabus triangularibus (una costali ante apicem, altera ante angulum analem) niveis, omnibus partim nigro succinctis, ciliis cupreo-metallicis.*

Head, face, and palpi shining metallic greyish fuscous. Antennæ fuscous.

Fore wings bright reddish orange, with a small fuscous basal patch slightly produced above the fold; three small silvery metallic costal spots followed by a triangular snow-white spot before the apex; one silvery metallic dorsal spot situated very slightly nearer to the base than the first costal spot, from which it is separated only by a few black scales on the fold; it is followed by a triangular snow-white spot before the anal angle; all the spots are more or less surrounded by scattered black scales; the apex and apical margin, with the base of the cilia, shining metallic bronzy cupreous.

Hind wings pale fuscous with slightly darker cilia.

The underside of all the wings shining bronzy, a bright orange spot on each side of the thorax beneath at the base of the fore wings. Third pair of legs with their long spurs shining silvery metallic, the tarsi with three conspicuous black bands.

Expanse 8 millim.

Pitt River, California, July 23, 1871.

This species agrees with the genus *Ætole* of Chambers (Can. Ent. vii. p. 173) in the length of the tongue, as well as in the rather narrowly produced apex of the fore wings, the only points in which it differs in external appearance from the genus in which I have ventured to place it. Mr. Stainton, who founded that genus (Ins. Brit., Lep. Tin. p. 243) for the reception of a single species, *Tinea rœsella*, Linn., writes to me that he "should be disposed to refer the insect" of which I sent him a specimen "to *Heliodines*." Without destroying one of my limited number of

examples to examine the neuration, I can find no difference in structure beyond the very slight modification above referred to.

A careful comparison of the descriptions of *Ætole* and *Heliodines* shows them to be at least very closely allied, if not identical; and as Mr. Chambers's figure of the neuration of his *Ætole bella* (Journ. Can. Soc. Nat. Hist. Jan. 1880, p. 26, fig. 54) does not seem to agree precisely with his previous description of the number and position of its veins, there may, perhaps, be some doubt as to the sufficiency of the evidence on which he separates them.

*ÆTOLE*, Chambers  
(Can. Ent. vii. p. 73).

"Scales of the head appressed; forehead wide, obtuse.

"Antennæ simple, rather thick, about as long as the body; basal joint short."

Tongue long and naked.  
No maxillary palpi.

"Labial palpi very short, drooping, the third joint pointed.

"The discal gives off two branches, the superior being furcate before the apex, with one of the branches to each margin" (figured simple, not furcate).

*HELIODINES*, Stainton  
(Ins. Brit., Lep. Tin. p. 243).

"Head smooth; forehead obtuse.

"Antennæ setaceous, almost as long as the body; basal joint short, clavate.

"Tongue of moderate length."  
(No maxillary palpi mentioned, none existing.)

"Labial palpi small, rather thick, acuminate.

"The furcate apical vein terminates in the apex and in the hinder margin."

Fig. 1.



*Ætole bella*.

Fig. 2.



*Heliodines ræsellæ*.

Neuration of wings.

If the upper fork of the apical vein (apparently described, but omitted in the figure, by Mr. Chambers) be inserted, the neuration of the two genera will be found to correspond very closely, with the exception of the absence of a short vein in *Ætole* which in *Heliodines* runs from the lower edge of the cell to the dorsal margin, which may possibly have been overlooked.

Mr. Chambers places his genus among the Elachistidæ, and states that it "resembles closely the European *Chrysoclista linneella*," which is the British genus placed nearest to *Heliodines* by Mr. Stainton, although not so placed in Wocke's Catalogue.



